

## Muskets at the Battle of Waterloo, the Brown Bess

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The India Pattern musket, nicknamed the Brown Bess, was the gun carried by most of our troops on that fateful day in June 1815. Mark Murray-Fletcher of the Royal Armouries traces its history.



*The simplicity of the 1793 India Pattern musket made it easy and cheap to produce.*

The Brown Bess musket was as essential a part of the victory at Waterloo as the Scots Greys and their famous charge. In celebration of the victory in Belgium 200 years ago we have spoken to the present Duke about his ancestor, The Duke of Wellington and Waterloo. We have also put together a victory menu for those keen to celebrate at the table with Waterloo recipes. And of course the story of the Brown Bess. So how did the Brown Bess musket play its part in the most important battle for a hundred years?

### THE BROWN BESS

On a soaking wet morning in what is now Belgium, on Sunday, the 18th of June 1815, two armies waited to do battle: the French under the Emperor Napoleon around La Belle Alliance and the allies under the Duke of Wellington near the small village of Waterloo on the ridge of Mont St Jean.

The ensuing battle was to be the last on the European continent to involve a British army for almost a hundred years – until the First World War – and one of Britain's greatest and most important victories. It was also probably the last time that the musket played a decisive, indeed a pivotal role in a European conflict.

### THE MUSKET – INDIA PATTERN MODEL

The standard musket issued to the British soldier throughout the late 18th and early 19th centuries was the India Pattern model, made in two variants and used against both Revolutionary and Napoleonic France. The first model was introduced in 1793 and the updated version in 1810. These muskets are similar to the shotguns we use today in that they are of the same calibre – .729in to .76in, or, in shotgun terms, 12-bore – and in their

ranges, both being effective at about 40 metres, although as muskets use a solid lead ball they were capable of reaching beyond 100 metres. Interestingly, during the 20th century, in parts of Africa, the musket could still be found in use as a shotgun.

The story of the development of the British India Pattern musket is that of the government's response to an urgent need for small arms to fight the French. Today we would term it an "Urgent Operational Requirement" or UOR, the sort of process that governs the issue of urgently needed equipment for the conflict in Afghanistan. This story starts at the end of the American Revolutionary War in 1783 when the British army was armed with the Pattern 1777 and Pattern 1779(S) Short Land Pattern musket, a musket characterised by its 42in barrel, made to the strict quality-control guidelines of the Board of Ordnance. In 1783, at the conclusion of the American war, the expectation was for a period of peace, a time when the need for ordnance materials would be low, so the contracts then standing for the Pattern 1777 and the Pattern 1779(S) musket were cancelled.

This common response to peace would be repeated many times in the following decades. Parliament was not prepared to fund equipment it deemed unnecessary, so financial retrenchment was the order of the day.

The world changed in 1793, a mere 10 years after the loss of the American colonies, when Britain found itself again at war, this time with Revolutionary France. An army now reduced in size to an authorised strength of only 44,432 men had to be expanded rapidly along with the local militia and volunteer forces. The call for muskets was going to be huge but in 1793 the total stock of muskets in armouries around Britain, including the central arsenal at the Tower of London, was around 60,000. Compare this with the stocks held in French arsenals, which amounted to 700,000-plus. The picture was not encouraging and something needed to be done.

At first the Ordnance tried to ramp up production of the Short Land Pattern muskets by engaging new contractors. But they were able to produce only slightly more than 31,000 muskets in 1793, a number woefully inadequate for the expanding forces. The Ordnance had to fill the gap somehow and did this by ordering 10,000 muskets from the Birmingham gun trade and 10,000 from its usual emergency suppliers in Liège, Belgium. But even this would not be enough, especially as the private contractors in Birmingham and London were hard at work fulfilling orders for the private trade and for the East India Company, one of the biggest private purchasers of military arms, both of them prompt payers.

To begin to solve this lack of supply the Master General of the Ordnance, the Duke of Richmond, suggested to the government that the East India Company be persuaded to sell its stocks of muskets to the government and agree not to place further orders until the Ordnance's requirements were met. He told Henry Dundas, the Home Secretary, that he was:

*'...aware how unpleasant it must be to take such a step, and to deliver out to our troops these East India Arms, which are considered of somewhat an inferior quality to ours, but ...the least important must give way to the most; and you will be best able to judge whether the East India Company can admit of a delay in respect of these arms. [Henry Dundas, as Chairman of the Board of Control, had earlier been instrumental in securing parliamentary approval for the renewal of the East India Company's monopoly.] And altho' they might not be quite so perfect as ours, they*

*undoubtedly must be serviceable ones, and such as the new Raised Corps must put up with on the current Emergency.”*

The suggestion was agreed to and by the end of 1794 the company had delivered into government stores 29,920 muskets, all that it could spare. Transactions for company muskets would continue throughout the duration of the Revolutionary and Napoleonic wars. By 1815 the company had sold the Ordnance at least 142,970 small arms.



*Below: Model 1793 India Pattern musket, with a swan neck cock.  
Above: 1810 India Pattern musket with a ring-neck cock.*

The musket that the East India Company supplied was originally designed by General Lawrence for company service and then altered and simplified by Lieutenant-Colonel Edward Windus in 1771. In company service it was known as the “Windus Pattern”. In 1795 the Ordnance began to order “India Pattern” muskets on its own account and by 1797 it adopted the musket officially as the Model 1793 and began to place substantial orders for it with the Birmingham gun trade.

The Model 1793 India Pattern musket was standardised by the Ordnance in 1797 to take account of its cheapness, simplicity of design and ease of manufacture. And by the end of 1797 the Birmingham gun trade was able to have delivered some 72,000 muskets to the government proof house at Bagot Street. The success of this model, along with its slightly modified successor, the Model 1810 India Pattern, can be gauged by the fact that between 1795 and 1815 nearly three million were produced at an average price of 18s.5d. It was the Model 1810 that was most numerous at Waterloo, although some of the Guards were armed with an intended replacement for the India Pattern, the Pattern 1804 New Land Pattern musket, the development and subsequent issue of which had been stopped due to an outbreak of peace.

The Model 1793 India Pattern is stocked to  $4\frac{1}{2}$ in (11.43cm) of the muzzle, the 39in barrel (99cm) being retained by three pins and an upper swivel screw. There are three brass ramrod pipes, as opposed to the four for the Short Land Pattern musket. All the brass is simpler in design, which aided the mass production of cast parts for the “setter uppers” (assemblers), as is the lock. The stock is plain walnut, the wood of an inferior heart and

sap quality. Supplies of this walnut were still obtained from Italy, despite Napoleon's attempts to throttle British trade with Europe. The amount of powder to be used for a charge was recommended as 6dr. The overall length of the musket is 55in (139cm) and with its attached bayonet 73in (185.5cm). The weight is measured at 9lb 11oz (4.394kg), almost a pound less than the earlier Short Land pattern musket, a weight similar to that of the current British Army L85A2 rifle.

#### SHORTCOMINGS OF THE BROWN BESS MUSKET

During the India Pattern's service many in the army and within the Ordnance were aware that the India Pattern had shortcomings. Hans Busk, author of *The Rifle and How to Use It*, wrote in 1859 that the British service musket was: "The very clumsiest and worst contrived of any firelock in the world. It required the largest charge of powder and the heaviest ball of any; yet owing to the absence of every scientific principle in its construction, its weight and windage were the greatest, its range the shortest, and its accuracy the least; at the same time it was the most costly of any similar arm in use, either in France, Belgium, Prussia or Austria."

This was somewhat unfair, being written some 30 years later with the benefit of hindsight, for test results then and now show that the India Pattern was, indeed, no worse than many of its foreign competitors and in some cases considerably better. However, it should be noted, that the quality of British gunpowder was by far the best in Europe and the most widely available. In fact, Britain supplied much of the powder used by her allies on the Continent during the Napoleonic wars.



*Using the musket at Waterloo. The 28th foot, the Gloucesters, in a square to withstand the French cavalry.*

Engagements for the infantry were traditionally at relatively close distances, often the result of closely controlled battlefield management. In 1811 a soldier of the 71st Regiment of Foot, writing of fighting the French at Fuentes de Onõro, recorded: "... during our first advance a bayonet went through between my side and clothes, to my knapsack, which stopped its progress. The Frenchman to whom the bayonet belonged fell, pierced by a musket ball from my rear-rank man. Whilst freeing myself from the bayonet, a ball took off part of my right shoulder wing and killed the rear-rank man, who fell upon me. We kept up

our fire until long after dark. My shoulder was black as coal from the recoil of my musket; for this day I had fired 107 round of ball cartridge.”

This was not an uncommon account and it would have been just as true of Waterloo. If we were to take an average of 80 cartridges fired by about 50,000 allied infantry at Waterloo the expenditure of ammunition would have amounted to more than four million cartridges. Although not scientific, it does give a flavour of the ferocity of battle that Sunday in June 1815.

In terms of performance, tests show that the musket is most accurate at about 50yd. Analysis of 19 battles between 1750 and 1830 shows that the average engagement distance for infantry was 64yd and that closing fire, when infantry was advancing and firing, was delivered at a mere 30yd. In terms of rate of fire a British infantryman was expected to manage three rounds a minute in combat. Tests carried out by the East India Company in 1834-5 using a Board of Ordnance India Pattern musket showed that it could penetrate three 1in-thick deal planks set 12in apart at 60yd and then penetrate 1in into the third three-layer set of planks. This set of results was with the service charge of 6dr of good-quality British powder, and when you observe the slow-motion footage of a musket ball penetrating a gel block and the shattering of simulated bone you can well understand the damage that musket balls wrought on the field of Waterloo.